TITLE OF THE INVENTION

METHOD AND APPARATUS FOR RESERVE-RECORDING A VIEWING BROADCAST PROGRAM

CLAIM FOR PRIORITY

This application makes reference to, incorporates the same herein, and claims all benefits accruing under 35 U.S.C. §119 from an application for *METHOD AND APPARATUS FOR RESERVE-RECORDING A VIEWING BROADCAST PROGRAM* earlier filed in the Korean Industrial Property Office on the 20th of June 1997, and there duly assigned Serial No. 26306/1997, a copy of which application is annexed hereto.

BACKGROUND OF THE INVENTION

Technical Field

The present invention relates to a method and apparatus for reserve-recording a broadcast program, and more particularly, to a method and apparatus for reserve-recording a viewing broadcast program so that while a user views a broadcast program, subsequent broadcast portion of the broadcast program is reserve-recorded.

Related Art

Generally, when a reserve-recording function of a broadcast program is executed by using a video cassette recorder (VCR) or a television incorporated with a VCR (TVCR), a user sets reserve-recording data such as a recording start time and end time, the channel of a desired broadcast program, types of reserve-recording, for example, once-recording, daily recording, every week recording, etc., and then press a reserve-recording button. Such a reserve-recording function requires the user to manipulate a number of times of keys, and can therefore be very burdensome and susceptible to mal-operations. Variations of this reserve-recording function are disclosed, for example, U.S. Patent No. 5,166,911 for *Timer Reservation Recording System* issued to Misawa et al., U.S. Patent No.5,270,829 for *Automatically Reserve-Recording And Reserve-Playing Back A Broadcasted Program* issued to Yang, U.S. Patent No. 5,293,357 for *Method And Apparatus For Controlling A Television Program Recording Device* issued to Hallenbeck, U.S. Patent No. 5,453,793 for *Method For Recording A Series Program In A Video Cassette Recorder* issued to Kim, U.S. Patent No. 5,499,102 for *Display Device For Videocassette Recorder Recording Reservations* issued to Hashimoto, U.S. Patent No. 5,543,933 for *Reserve-Recording Method And Apparatus For VCR* issued to Kang et al., and U.S. Patent No. 5,646,603 for *Remote Control Apparatus For Recording/Playback Equipment*, U.S. Patent No. 5,657,414 to Lett *et al.*, entitled *Auxiliary Device Control For A Subscriber Terminal* issued to Nagata et al.

Other simplified reserve-recording techniques such as "G code" recording have been proposed such as disclosed in U.S. Patent No. 5,479,267 for *Device For Combining VCR And TV*

issued to Hashimoto, and U.S. Patent No. 5,608,534 for *Apparatus And Method For Performing Reservation-Recording Of Video Cassette Recorder* issued to Park et al. Generally, G code is expressed with Arabic numerals up to 8-digits. The G code reserve-recording method uses special codes of programs listed on a newspaper or a TV program guide. When a user notes down special codes of programs listed on a newspaper and enters the numerals of a G code corresponding to the selected program into a VCR, the VCR analyzes the numerals and provides information containing a corresponding channel, reserve-recording start time and reserve-recording end time of a desired program. Thus, reserve-recording can be executed by inputting only numerals, without requiring the user to set information necessary for reserve-recording by manipulating a number of times of keys, However, the newspaper or program guide must be referred. Each broadcasting station transmits a broadcasting signal together with program identification information on a regular broadcast date, time and title with respect to a broadcasting program based on a predefined data format which is specified between broadcasting stations.

The VCR or TVCR has a function of reserve-recording a desired broadcast program and recording the reserve-recorded broadcast program, using received program identification information. This function is called a video programming system (VPS) in case of an European broadcast system and a Korean broadcast program system (KBPS) in case of a Korean broadcast system. In case of reserve-recording by the KBPS, the VCR extracts KBPS data contained in a received broadcast signal, pre-stores the extracted data, displays the stored KBPS data on a TV screen, and makes a user select a desired broadcast program. A basic picture viewed with the KBPS

data contains a current time, name of corresponding broadcast station, title of a broadcast program to be broadcasted according to a broadcast schedule. The VCR changes a channel automatically according to the KBPS data on a broadcast program selected by the user at the time when the program is broadcasted, thereby allowing a desired broadcast program to be reserve-recorded. However, irrespective of any types of reserve-recording, all conventional techniques require the user to manipulate keys once or more to move a cursor on a TV screen around to set the reserve-recording function. In addition, when reserve-recording a subsequent broadcast portion of the broadcast program which a user currently views, the conventional technique converts a current viewing broadcast picture into a reserve mode picture, or into a basic picture of the KBPS data. Therefore, there has been a drawback in that the broadcast program under the user's viewing is interrupted when setting reserve-recording.

SUMMARY OF THE INVENTION

Accordingly, it is therefore an object of the present invention to provide a broadcast program reserve-recording method which can reserve-record a subsequent broadcasting portion of a broadcast program by once manipulating a key while a user views the broadcast program.

It is also an object to provide a broadcast program reserve-recording apparatus which can reserve-record a subsequent broadcasting portion of a broadcast program by once manipulating a key while a user views the broadcast program.

These and other objects of the present invention can be achieved by a method for reserve-

recording a viewing broadcast program which comprises the steps of: (a) pre-storing program identification information contained in broadcast programs of broadcast stations; (b) selecting reserve-recording with respect to the viewed broadcast program during viewing the broadcast program; (c) maintaining to view the broadcast program selected at step (b) and reading program identification information corresponding to the selected broadcast program among the program identification information stored at step (a); and (d) setting reserve-recording data with the program identification information read at step (c).

In accordance with another aspect of the present invention, a viewing broadcast program reserve-recording apparatus comprises a first storage unit for pre-storing program identification information contained in a broadcast signal of each broadcast station; a key input unit for applying a key input signal for reserve-recording a viewing broadcast program; a controller for maintaining a current broadcast picture just as is when receiving the key input signal from the key input unit, reading program identification information corresponding to the broadcast program from the first storage unit, and setting reserve-recording information with the read information; and a second storage unit for storing reserve-recording information set by the controller.

The present invention is more specifically described in the following paragraphs by reference to the drawings attached only by way of example.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete appreciation of the present invention, and many of the attendant advantages thereof, will become readily apparent as the same becomes better understood by reference to the following detailed description when considered in conjunction with the accompanying drawings in which like reference symbols indicate the same or similar components, wherein:

FIG. 1 is a block diagram of a broadcast program reserve-recording apparatus of a broadcast program according to a preferred embodiment of the present invention; and

FIG. 2 is a flowchart illustrating an operation of the broadcast program reserve-recording apparatus as shown in FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings and particularly to FIG. 1, which illustrates a reserve-recording apparatus of a broadcast program during user's viewing according to a preferred embodiment of the present invention. A Korean broadcast program system (KBPS) is intended for reserve-recording a desired broadcast program and recording the reserve-recorded broadcast program using received program identification information. As shown in FIG. 1, the reserve-recording apparatus comprises a key input unit 11 for applying a key input signal to reserve-record a broadcast program during user's viewing; a first storage unit 13 for extracting KBPS data contained in a broadcast signal of each broadcast station and pre-storing the extracted data; a controller 12 for reading the KBPS data corresponding to a viewing broadcast program among the KBPS data stored in the first storage unit 13 according to the key input signal input from the key input unit 11, and

setting reserve-recording data with the read KBPS data; and a second storage unit 14 for storing the set reserve-recording data.

The operation of the reserve-recording apparatus as shown in FIG. 1 will be described in detail with reference to FIG. 2 as follows.

When a VCR or TVCR is turned on under the condition that a normal broadcast signal is applied, a tuner (not shown) receives a broadcast signal introduced via an antenna and selects the broadcast signal transmitted from each broadcast station according to channels. The first storage unit 13 extracts the KBPS data on a broadcast title, broadcast date, start time, end time and name of each broadcast station concerning programs to be broadcasted, and stores the extracted data, wherein the broadcast programs are contained in the broadcast signal of a selected channel.

Meanwhile, if a user inputs a reserve key signal for reserve-recording via the key input unit 11 while watching the broadcast program (step 201), the controller 12 receives the reserve key signal, recognizes the current viewing broadcast program as a broadcast program to be reserve-recorded, and reads reserve-recording data corresponding thereto from the first storage unit 13 (step 202). At this time, the controller 12 maintains a current viewing broadcast picture so that the broadcast program under user's viewing is not interrupted. In step 202, the controller 12 reads the KBPS data corresponding to the viewing broadcast program among the KBPS data pre-stored in the first storage unit 13. The read KBPS data contains a title, date, time and channel number of a

program to be broadcasted. The controller 12 sets reserve-recording data using the same date, time and channel number as a broadcast date, time and channel number concerning the broadcast program included in the KBPS data read from the first storage unit 13 (step 203). The controller 12 stores the set reserve-recording data in the second storage unit 14. When the reserve-recording is set, the controller 12 performs a recording operation according to the reserve-recording data stored in the second storage unit 14 under the stand-by status.

As described above, the method and apparatus for reserve-recording a broadcast program during user's viewing according to the present invention is capable of checking data on a broadcast date, time, channel numbers concerning the viewing broadcast program among program identification information of pre-stored VPS data or KBPS data, and automatically setting reserve-recording, without converting a current picture into a reserve-recording picture when a reserve key signal for reserve-recording is applied during the viewing of the broadcast program. Therefore, the present invention advantageously permits the subsequent broadcast portion of the current viewing broadcast program to be reserve-recorded, without interrupting the viewing of the current broadcast program.

While there have been illustrated and described what are considered to be preferred embodiments of the present invention, it will be understood by those skilled in the art that various changes and modifications may be made, and equivalents may be substituted for elements thereof without departing from the true scope of the present invention. In addition, many modifications may

be made to adapt a particular situation to the teaching of the present invention without departing from the central scope thereof. Therefore, it is intended that the present invention not be limited to the particular embodiment disclosed as the best mode contemplated for carrying out the present invention, but that the present invention includes all embodiments falling within the scope of the appended claims.